Navajo Abandoned Uranium Mine

Site Screen Report

This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits, pits and waste piles. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands that may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.

The purpose of the form is to ascertain the status and location of the identified AUM site, and record all immediate site information associated with the mine site. Decisions and recommendations on what additional steps are needed will be provided on a separate document.

Cove Mesa Mines (AEC Plot 7) AUM Site

Navajo AUM Northern Region

Prepared by:

Weston Solutions, Inc.

Contract: W91238-06-F-0083

12767.063.496.1111

March 2010

Part I Site Identification, Location and Status

Site Names and ID numbers as applicable

Mine ID: 37, 38, 39, 430, 431, 434, 497, 498, 501

Map ID:
#37 - N113
#38 - N114
#39 - N120
#430 - N119
#431 - N116
#434 - N122
#497 - N124
#498 - N123
#501 - N118

CERCLIS: NNN000908839

Navajo Abandoned Mine Land Reclamation Program:

#37 – NA-0308
#38 – NA-0308
#39 – NA-0306
#430 – None
#431 – None
#434 – None
#497 – NA-0340, NA-0304
#498 – NA-0340, NA-0305
#501 – NA-0303, NA-0307, NA-0309

Local name / Aliases: Cove Mesa; AEC Lease Plot 7; MP-558

Chapter and local area:
#37 - Sweetwater Chapter
#38 - Sweetwater Chapter
#39 - Sweetwater Chapter
#430 - Red Valley Chapter
#431 - Red Valley Chapter
#434 - Sweetwater /Red Valley Chapter
#497 - Sweetwater /Red Valley Chapter
#498 - Sweetwater Chapter
#501 - Sweetwater /Red Valley Chapter

County: Apache **State:** Arizona

Lat/Long:
#37 - 36.6486555054 N / -109.281148544 W
#38 - 36.6478027234 N / -109.276385236 W
#39 - 36.6375536912 N / -109.277490595 W
#430 - 36.6393199949 N / -109.270484862 W
#431 - 36.6432843066 N / -109.269878202 W
#434 - 36.6371104611 N / -109.270925865 W

#497 - 36.6320816673 N / -109.269115369 W
#498 - 36.6315799260 N / -109.272836662 W
#501 - 36.6409865343 N / -109.273918583 W

Nearby road and highway: Indian Route 332, IR 1040 **Local Post Office:** Cove, AZ

Surface Land Status: check one or more and provide ownership and contact information below

Tribal Trust Land	☒	**Public lands**	☐
Private	☐	**Tribal Fee Land**	☐
Bureau of Land Mgmt	☐	**Allotment**	☐
State	☐	**Fee land**	☐

Subsurface Mineral Rights:

No information on subsurface mineral rights ownership was found in the EPA/AUM Database.

Claim and operator information:

The mine site surface land status is classified as Tribal Trust Land. Historical documents showed the operator of the mine as Vanadium Corp. of America, Leroy Pettigrew, and William Wittmeyer from 1948 to 1961, and Vanadium Corp. of America, C.H. Corey Jr, and William George from 1962 to 1965. No other historical ownership / lease information was identified in the EPA/AUM database.

Number of residential structures within 200 feet of mine: None

Estimated volume of mine waste onsite:
#37 – 3,240 yd^3
#38 – None
#39 – 11,629 yd^3
#430 – 518 yd^3
#431 – None
#434 – 37 yd^3
#497 – 278 yd^3
#498 – 463 yd^3
#501 – 140 yd^3

Part II Summary of radiological readings

Mine ID # 37

Highest gamma radiation measurement:

19,578 counts per minute (cpm)

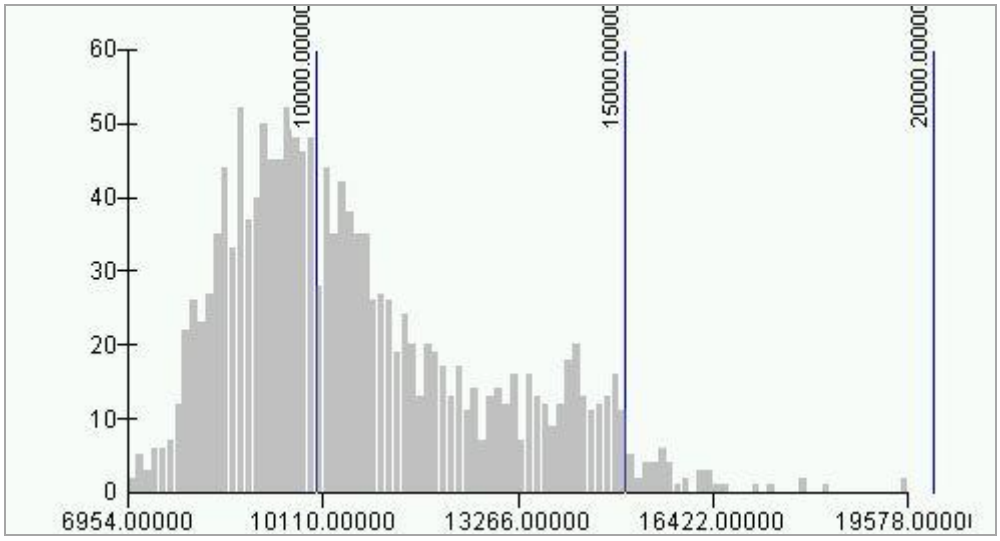
Describe any other radiological measurements:

A total of 1,525 gamma radiation measurements were collected from the mine site, ranging from 6,954 cpm to 19,578 cpm. Measurements in the drainage to the north were found at levels of approximately 23,000 cpm. The measurements are represented in Figures 2 and 3.

Background Locations **Average background** = 8,683 cpm
#1 9,466 cpm
#2 7,899 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	1525
Minimum:	6954.00000
Maximum:	19578.00000
Sum:	16258431.00000
Mean:	10661.26623
Median:	10182.00000
Standard Deviation:	2099.28567

Mine ID # 38

Highest gamma radiation measurement:

12,972 counts per minute (cpm)

Describe any other radiological measurements:

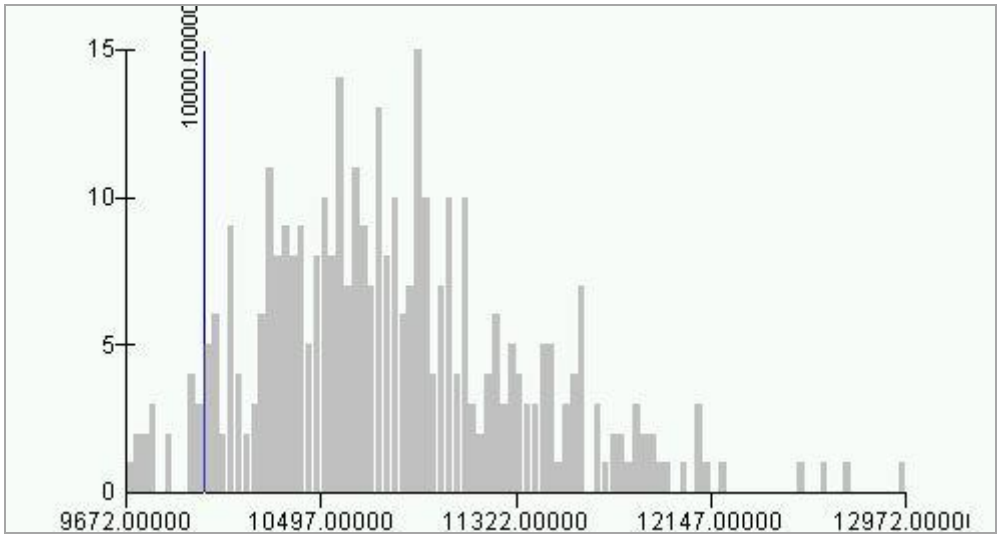
A total of 397 gamma radiation measurements were collected from the mine site, ranging from 9,672 cpm to 12,972 cpm. The measurements are represented in Figures 4 and 5.

Background Locations **Average background =** 10,932 cpm

#1 10,921 cpm
#2 10,843 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	368
Minimum:	9672.00000
Maximum:	12972.00000
Sum:	3975774.00000
Mean:	10803.73370
Median:	10743.50000
Standard Deviation:	553.97354

Mine ID # 39

Highest gamma radiation measurement:

65,739 counts per minute (cpm)

Describe any other radiological measurements:

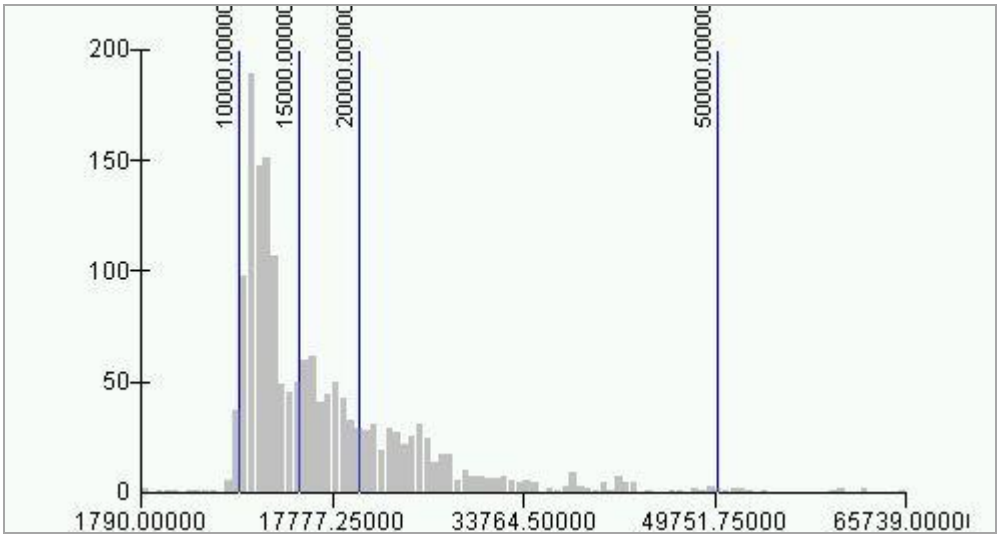
A total of 1,663 gamma radiation measurements were collected from the mine site, ranging from 1,790 cpm to 65,739 cpm. Measurements in the vicinity of the waste debris were found at levels of approximately 60,000 cpm. The measurements are represented in Figures 6 and 7.

Background Locations **Average background** = 11,635 cpm

#1 11,179 cpm
#2 12,090 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	1662
Minimum:	1790.00000
Maximum:	65739.00000
Sum:	28619213.00000
Mean:	17219.74308
Median:	14480.00000
Standard Deviation:	8007.34012

Mine ID # 430

Highest gamma radiation measurement:

90,979 counts per minute (cpm)

Describe any other radiological measurements:

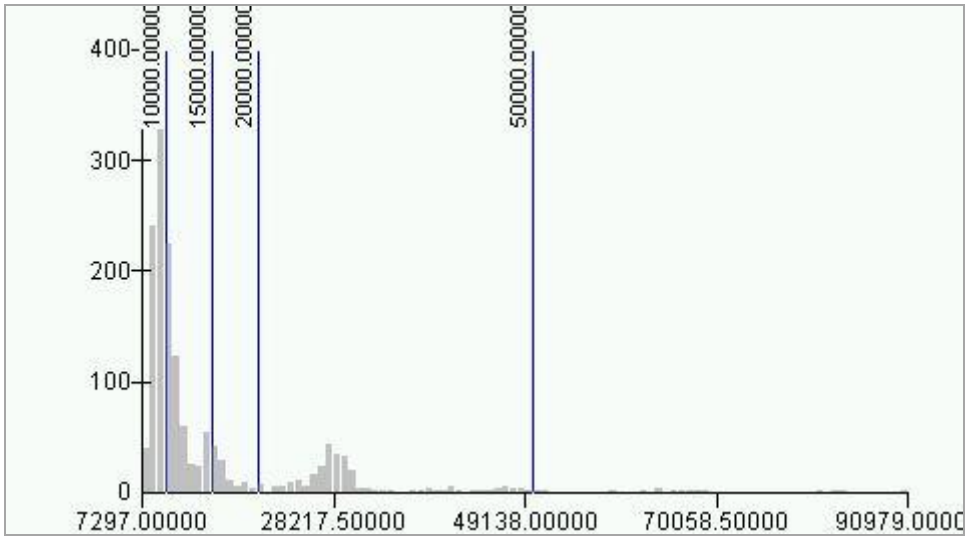
A total of 1,530 gamma radiation measurements were collected from the mine site, ranging from 7,297 cpm to 90,979 cpm. Measurements in the vicinity of the waste debris were found at levels of approximately 20,000 cpm. The measurements are represented in Figures 8 and 9.

Background Locations **Average background** = 9,984 cpm

#1 9,537 cpm
#2 10,341 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	1530
Minimum:	7297.00000
Maximum:	90979.00000
Sum:	22412514.00000
Mean:	14648.70196
Median:	10216.00000
Standard Deviation:	10240.93234

Mine ID # 431

Highest gamma radiation measurement:

14,085 counts per minute (cpm)

Describe any other radiological measurements:

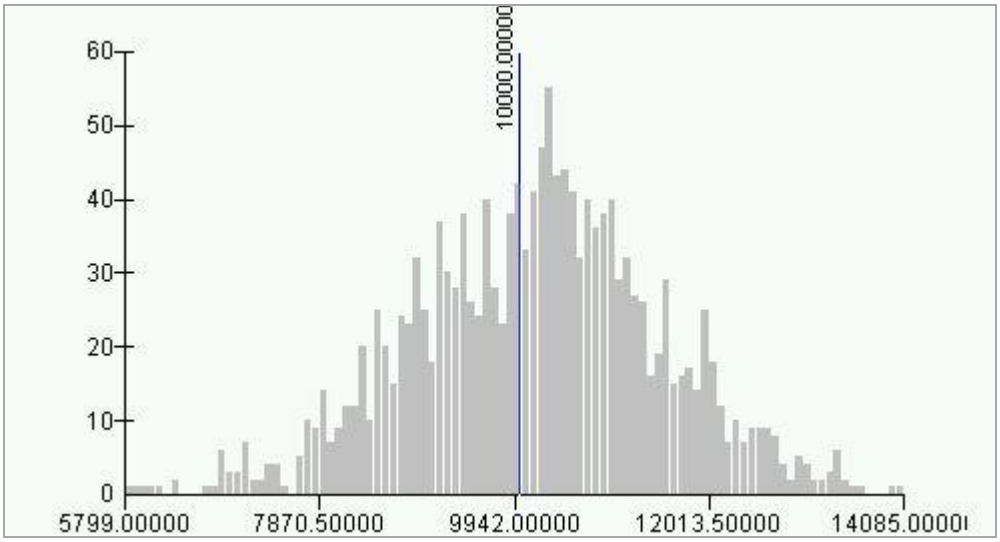
A total of 1,564 gamma radiation measurements were collected from the mine site, ranging from 5,799 cpm to 14,085 cpm. The measurements are represented in Figures 10 and 11.

Background Locations **Average background =** 11,696 cpm

#1 10,843 cpm
#2 12,549 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	1563
Minimum:	5799.00000
Maximum:	14085.00000
Sum:	15883019.00000
Mean:	10161.88036
Median:	10236.00000
Standard Deviation:	1321.55758

Mine ID # 434

Highest gamma radiation measurement:

15,489 counts per minute (cpm)

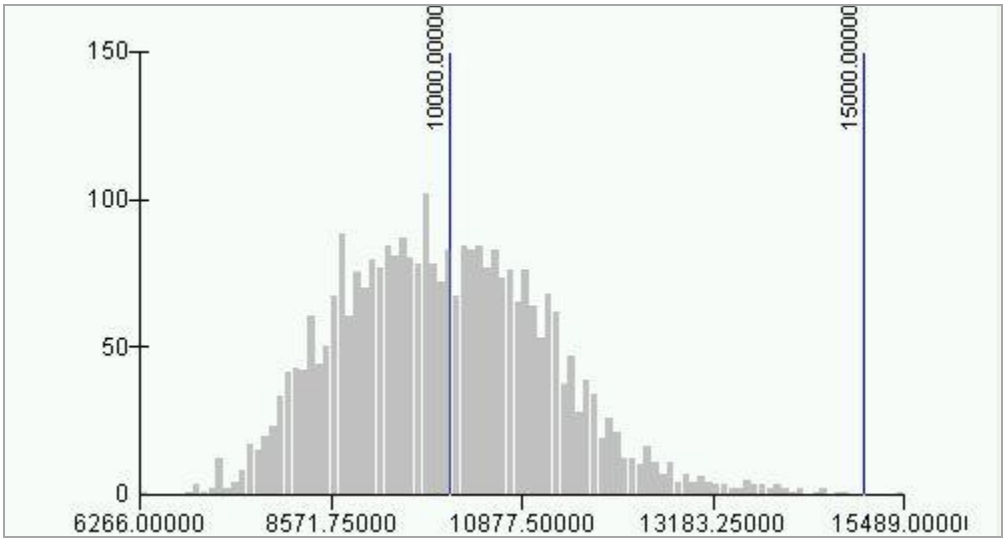
Describe any other radiological measurements:

A total of 3,090 gamma radiation measurements were collected from the mine site, ranging from 6,266 cpm to 15,489 cpm. The measurements are represented in Figures 12 and 13.

Background Locations **Average background =** 10,136 cpm
#1 8,995 cpm
#2 11,317 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	3090
Minimum:	6266.00000
Maximum:	15489.00000
Sum:	30745379.00000
Mean:	9949.96084
Median:	9887.00000
Standard Deviation:	1255.80225

Mine ID # 497

Highest gamma radiation measurement:

113,207 counts per minute (cpm)

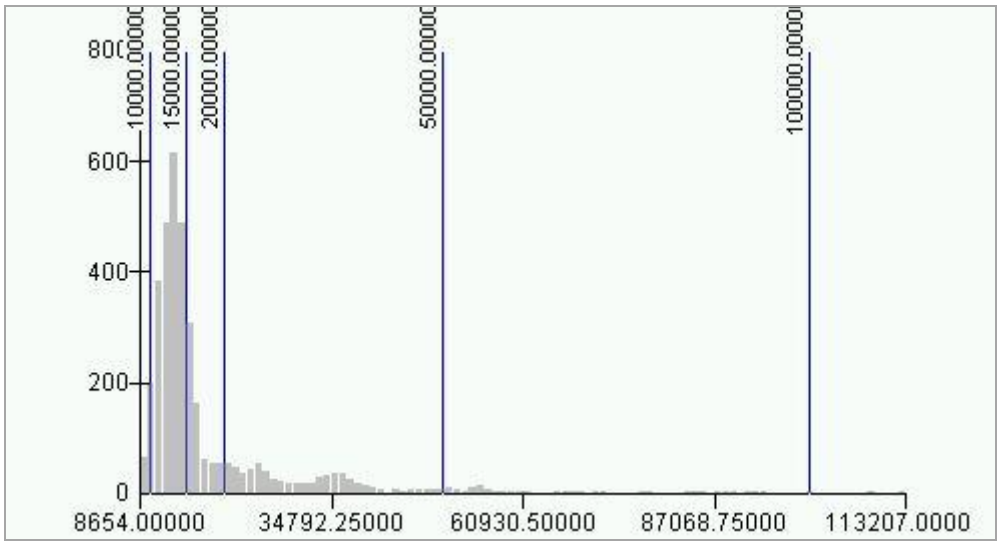
Describe any other radiological measurements:

A total of 3,667 gamma radiation measurements were collected from the mine site, ranging from 8,654 cpm to 113,207 cpm. Measurements in the vicinity of the waste debris were found at levels ranging from approximately 30,000 – 45,000 cpm. The measurements are represented in Figures 14 and 15.

Background Locations **Average background =** 12,670 cpm
#1 12,670 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	3667
Minimum:	8654.00000
Maximum:	113207.00000
Sum:	68508961.00000
Mean:	18682.56368
Median:	14063.00000
Standard Deviation:	13258.44404

Mine ID # 498

Highest gamma radiation measurement:

144,844 counts per minute (cpm)

Describe any other radiological measurements:

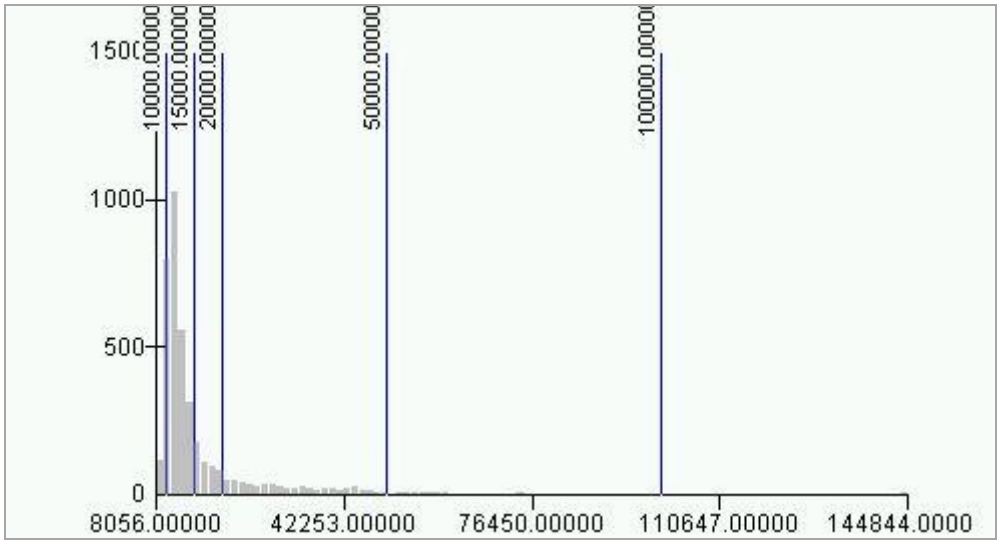
A total of 3,925 gamma radiation measurements were collected from the mine site, ranging from 8,056 cpm to 144,844 cpm. Measurements in the vicinity of the waste debris were found at levels of approximately 40,000 cpm. Measurements in the vicinity of the reclamation cap ranged from 80,000 cpm – 140,000 cpm. The measurements are represented in Figures 16 and 17.

Background Locations **Average background =** 11,079 cpm

#1 10,511 cpm
#2 11,965 cpm
#3 10,760 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	3925
Minimum:	8056.00000
Maximum:	144844.00000
Sum:	67751233.00000
Mean:	17261.46064
Median:	12220.00000
Standard Deviation:	14948.55606

Mine ID # 501

Highest gamma radiation measurement:

425,336 counts per minute (cpm)

Describe any other radiological measurements:

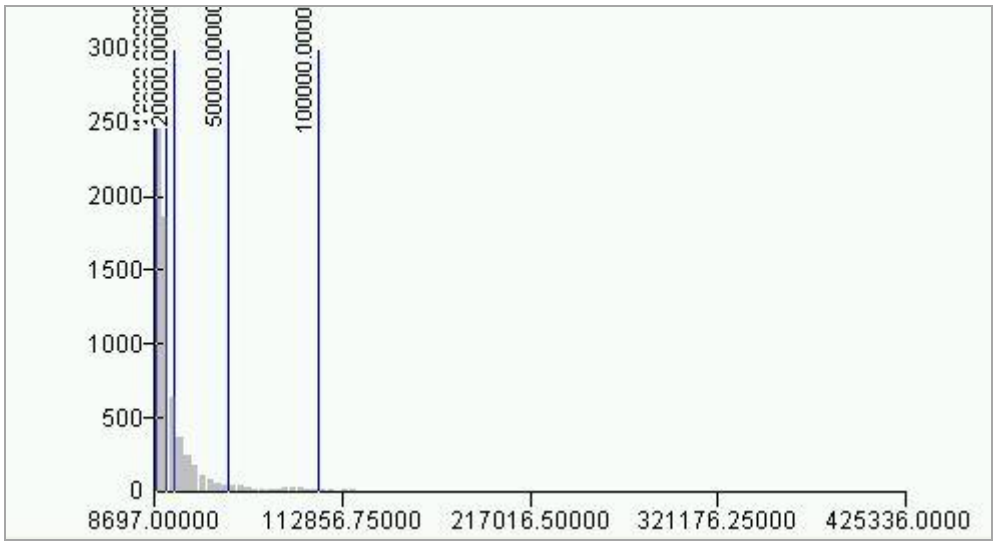
A total of 6,431 gamma radiation measurements were collected from the mine site, ranging from 8,697 cpm to 425,336 cpm. Measurements in the vicinity of the waste debris were found at levels ranging from approximately 30,000 – 425,000 cpm. The measurements are represented in Figures 18 and 19.

Background Locations **Average background =** 10,723 cpm

#1 10,660 cpm
#2 10,785 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	6431
Minimum:	8697.00000
Maximum:	425336.00000
Sum:	138685511.00000
Mean:	21565.15487
Median:	14143.00000
Standard Deviation:	28926.85217

Part III Status of Reclamation and Mine Waste

Mine ID #37

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** Yes

NAMLRP Project Number: NA-0308

NAMLRP Mine features: 4 Rim Strip / Pits

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
Cliff appears littered with waste debris, 350' x 50' area, with a total estimated volume of 3,240 yd^3

Pits
None

Shafts
None

Other Debris and Mine Features
None

Mine ID #38

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** No

NAMLRP Project Number: NA-0308

NAMLRP Mine features: 1 Portal

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
None

Pits
None

Shafts
None

Other Debris and Mine Features
None

Mine ID #39

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** Yes

NAMLRP Project Number: NA-0306

NAMLRP Mine features: 7 Rim Strip / Pits, 4 Portals, 1 Prospect

---

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
Waste pile found along edge at south of site, 10' x 15' x 10'; another down slope 500' x 125' area; with a total estimated volume of 11,629 yd^3

Pits
None

Shafts
None

Other Debris and Mine Features
None

Mine ID #430

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** Yes

NAMLRP Project Number: None

NAMLRP Mine features: 1 Rim Strip / Pit

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
2 waste piles: 60' x 30'; 40' x 25'; with a total estimated volume of 518 yd^3

Pits
None

Shafts
None

Other Debris and Mine Features
None

Mine ID #431

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** Yes

NAMLRP Project Number: None

NAMLRP Mine features: 1 Rim Strip / Pit

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
None

Pits
None

Shafts
None

Other Debris and Mine Features
None

Mine ID #434

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** Yes

NAMLRP Project Number: None

NAMLRP Mine features: 1 Rim Strip / Pit

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
Waste pile 10' x 20' wide extending down cliffs to the east, with a total estimated volume of 37 yd^3

Pits
None

Shafts
None

Other Debris and Mine Features
None

Mine ID #497

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** Yes

NAMLRP Project Number: NA-0304, NA-0340

NAMLRP Mine features: 3 Rim Strip / Pits, 8 Portals

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
Possible adit caved in due to erosion; another possible adit found closed off due to erosive landslide

Waste Piles
Waste piles noted on the NE and NW corners, the SE area, and large debris 10' x 150' washed down cliffs about 250', with a total estimated volume of 278 yd^3

Pits
None

Shafts
None

Other Debris and Mine Features
None

Mine ID #498

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** Yes

NAMLRP Project Number: NA-0305, NA-0340

NAMLRP Mine features: 4 Rim Strip/Pits, 6 Portals, 1 Prospect

---

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
Clay/waste mounds along cliffs, with a total estimated volume of 463yd^3

Pits
None

Shafts
None

Other Debris and Mine Features
Small clay reclamation cap near edge of mesa

Mine ID #501

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

NAMLRP Status of the mine site: Reclaimed : Yes **Waste Pile onsite :** Yes

NAMLRP Project Number: NA-0303, NA-0307, NA-0309

NAMLRP Mine features: 16 Rim Strip/Pits, 12 Portals

The following information was obtained from field observations collected during the 2009 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
2 waste piles on NW side: 15' x 20' ; 20' x 20' into side of mesa and steep cliffs; one 10' x 5' waste pile on SW side, with a total estimated volume of 140 yd^3

Pits
None

Shafts
None

Other Debris and Mine Features
2 large clay reclamation caps at SE end of site; ventilation pipes and other metal debris

Part IV

Site observations and Environs

Observed Structures: list number of and describe human habitation status of structures at the following distances from mine:

0 to 200 feet: None

200 feet to 0.25 mile: None

Observed Public or commercial structure: list and describe all schools, clinics, Chapter Houses, places of business and any other structure used by members of the community at the following distances:

0 to 200 feet: None

200 feet to 0.25 mile: None

Levels measured around the perimeter(s) of the identified structure(s): None

Observed water sources: list the number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine:

0 to 0.25 miles: None

0.25 miles to 4 miles: None

Sensitive environments: note and describe all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation.

None observed

Known Site History: include information from interviews with Chapter officials and residents. Note information on mine ownership, type of mining operation, period of operation, known amount of production, and any other information as provided.

Cove Mesa Mines (AEC Plot 7) consists of 9 mine sites with a total area of 565,672.26 m^2 (#37 – 13,917.68 m^2, #38 – 1,249.32 m^2, #39 – 65,346.73 m^2, #430 – 18,596.81 m^2, #431 – 18,725.02 m^2, #434 – 18,380.84 m^2, #497 – 88,188.95 m^2, #498 – 127,180.82 m^2, #501 – 214,086.09 m^2). Historical information showed that limited mining took place in 1943, from 1948-61 the site was mined as the AEC Lease, Plot 7. From 1961-64 the site was mined under William George's MP-558. Curran Brothers & Wade , VCA, John Woodrow, Harvey Young, Leroy Pettigrew, William Wittmeyer, C.H. Corey, Jr., and W.E. Gripe were also identified to have possible involvement in the mining activities. No additional ownership / lease information was identified in the EPA/AUM database.

Part V Response Action Summary

Site Name(s): Cove Mesa Mines (AEC Plot 7) **Chapter:** Red Valley, Sweetwater.

Decision Criteria

Is there an unreclaimed waste pile at the site? Yes

At what distance from the waste pile is the nearest residential structure located? None

At what distances from the waste pile are there potential drinking water sources? None

Is there a reclamation cap or sealed adit in place at the site? Yes

Is the cap/seal functionally intact? Yes

Is the cap/seal sufficiently degraded to create a concern about releases? No

At what distance from the cap/seal is the nearest domestic structure located? None

At what distance from the cap/seal is the nearest domestic drinking water source? None

Summary of emergency response factors

None

Summary hazard ranking system factors

None

Summary of reclamation factors

Waste piles found at 7 of the 9 mine sites; 2 possible closed adits were found at site #497; reclamation caps were found at sites #498 and #501

Part VI Photos

Photo 1. Site #37 – Cliff area

Photo 2. Site #37 – Cliff area with waste rock

Photo 3. Site #37 – Cliff area

Photo 4. Site #38 – Mine site

Photo 5. Site #39 – Down slope area

Photo 6. Site #39 – Onsite drainage

Photo 7. Site #39 – Down slope area

Photo 8. Site #39 – Down slope area and waste rock

Photo 9. Site #430– Waste pile

Photo 10. Site #430– Cliff area

Photo 11. Site #430– Waste pile

Photo 12. Site #431– Mine site

Photo 13. Site #431– Mine site

Photo 14. Site #434– Down slope area

Photo 15. Site #434– Mine site

Photo 16. Site #434– Waste pile

Photo 17. Site #497– Down slope area

Photo 18. Site #497– Waste Rock

Photo 19. Site #497– Possible adit

Photo 20. Site #497– Additional possible adit

Photo 21. Site #497– Mine site

Photo 22. Site #497– Waste rock

Photo 23. Site #498– Cliff area and waste rock

Photo 24. Site #498– Cliff area and dirt pile

Photo 25. Site #498– Mining evidence

Photo 26. Site #498– Cliff area

Photo 27 Site #498– Mining evidence

Photo 28. Site #498– Mining evidence

Photo 29. Site #498– Possible reclamation cap

Photo 30. Site #498– Cliff area and waste rock

Photo 31. Site #498– Down slope area and waste rock

Photo 32. Site #501– Cliff area and waste rock

Photo 33. Site #501– Waste debris

Photo 34. Site #501– Reclamation cap

Photo 35. Site #501– Reclamation cap

Photo 36. Site #501– Reclamation cap

Photo 37. Site #501– Waste pile

Photo 38. Site #501– Cliff area and waste rock

Photo 39. Site #501– Down slope area

Part VII Contacts Reports and Information

Name: Stanley Edison (928) 871-6861

Eugene Esplain (928) 871-7331

Title or official role (if any) Navajo EPA Superfund Program

Address PO Box 2946, Window Rock, AZ 86515

Information provided Lead Regulatory Agency

Name_____

Title or official role (if any) _____

Address_____

Telephone number_____

Information provided_____

Name_____

Title or official role (if any) _____

Telephone number_____

Information provided_____

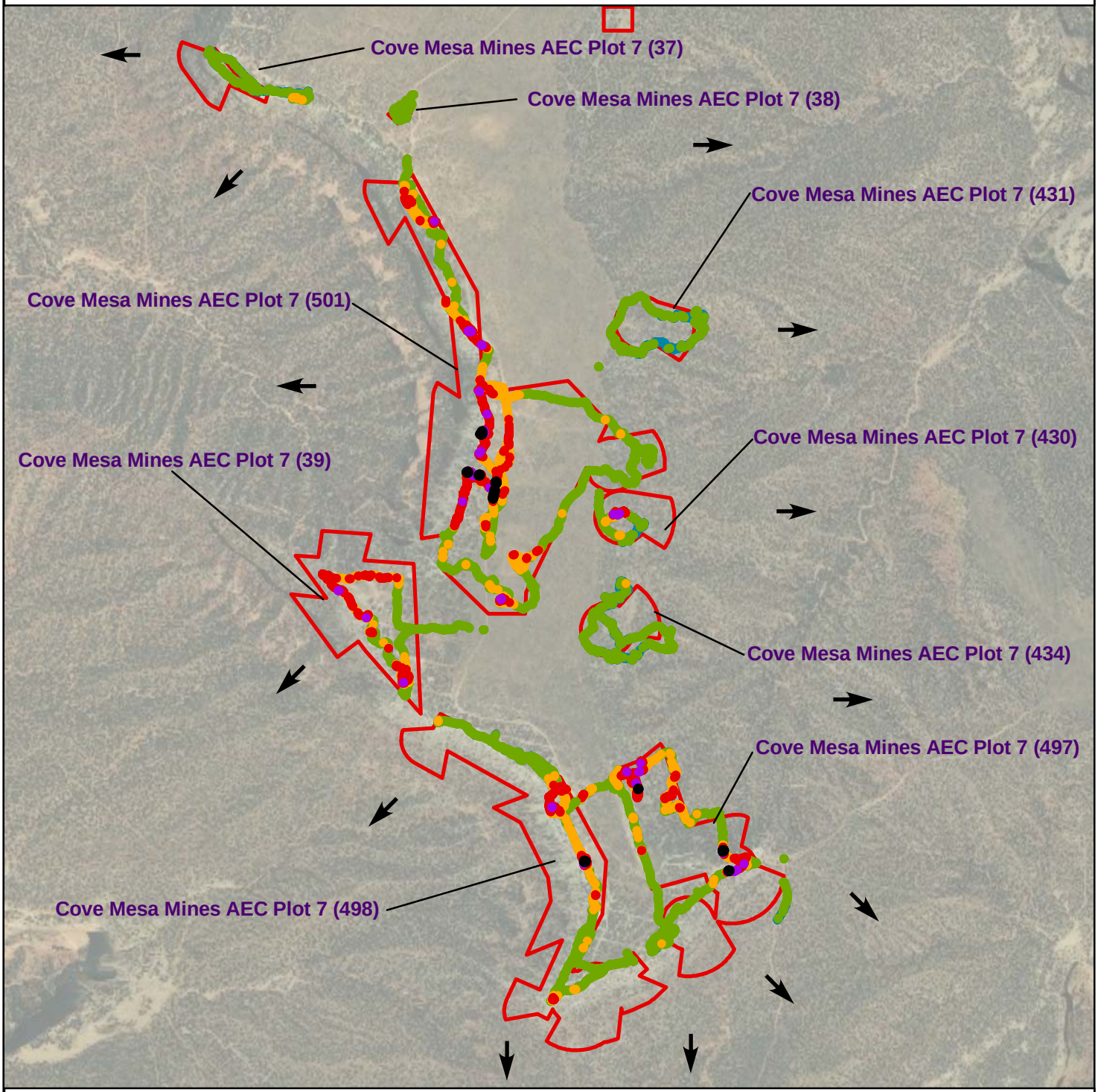
Name_____

Title or official role (if any) _____

Telephone number_____

Information provided_____

Figure 1 - Gamma Radiation Measurements
Cove Mesa Mines lot 7 (37, 38, 39, 430, 431, 434, 497, 498, 501)
Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

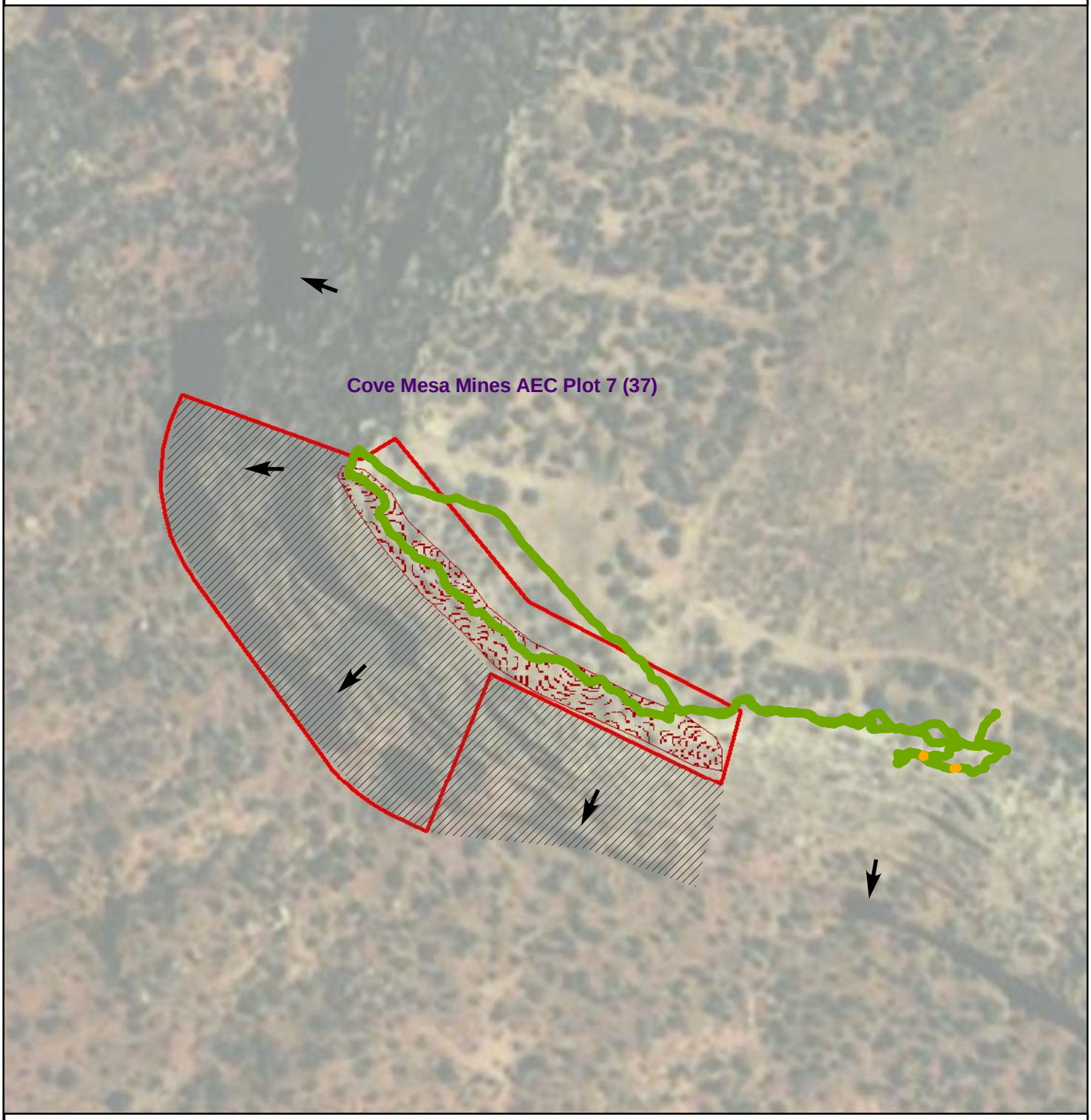
N

Feet

0 1,500

WESTON SOLUTIONS

Figure 2 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mine AEC Plot 7 (37)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 8,683 cpm

Observed Waste Pile

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

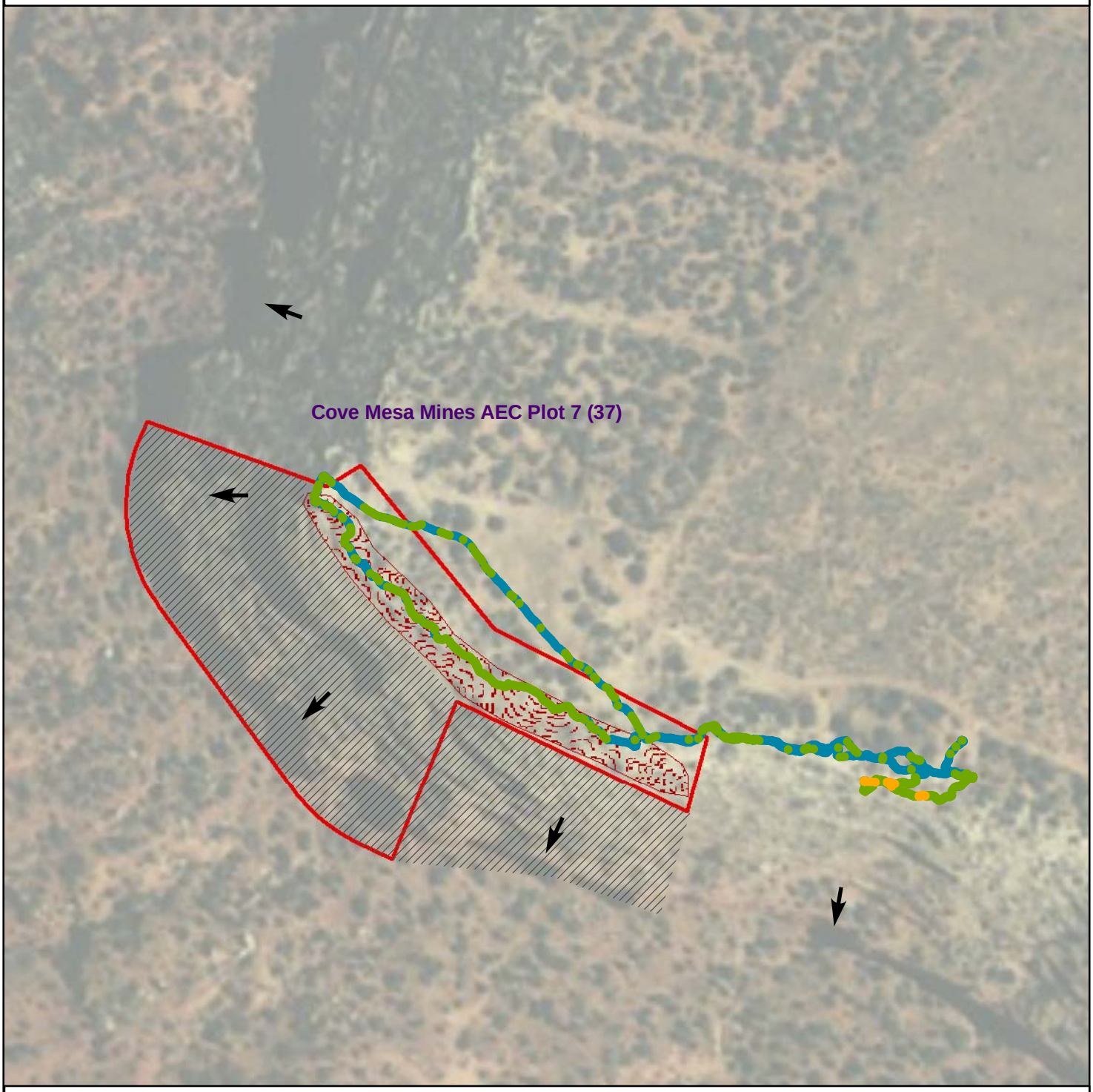
N

Feet

0 **200**

WESTON SOLUTIONS

Figure 3 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (37)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Observed Waste Pile

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 8,683 cpm

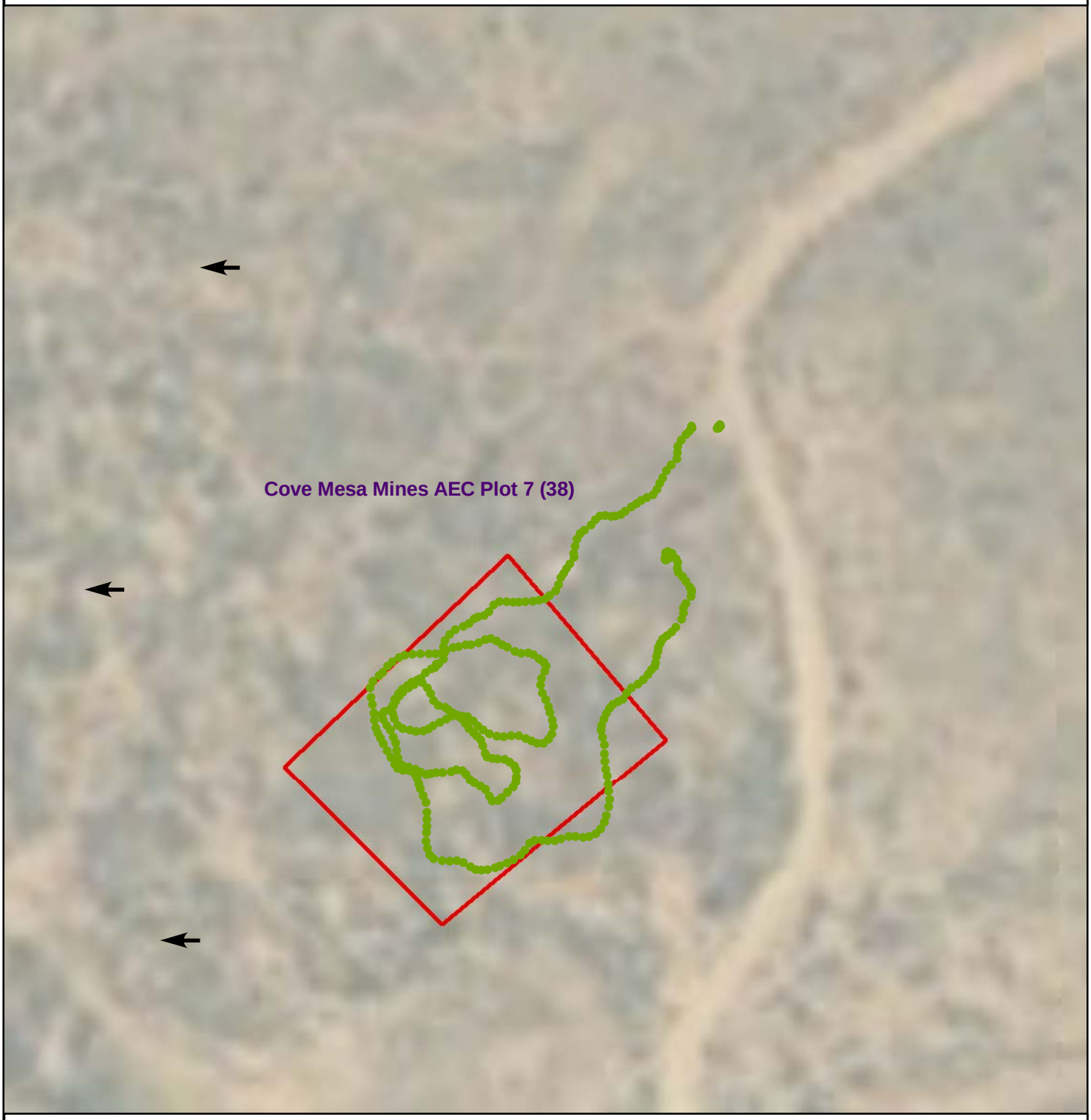
N

Feet

0 200

WESTON SOLUTIONS

Figure 4 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mine AEC Plot 7 (38)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

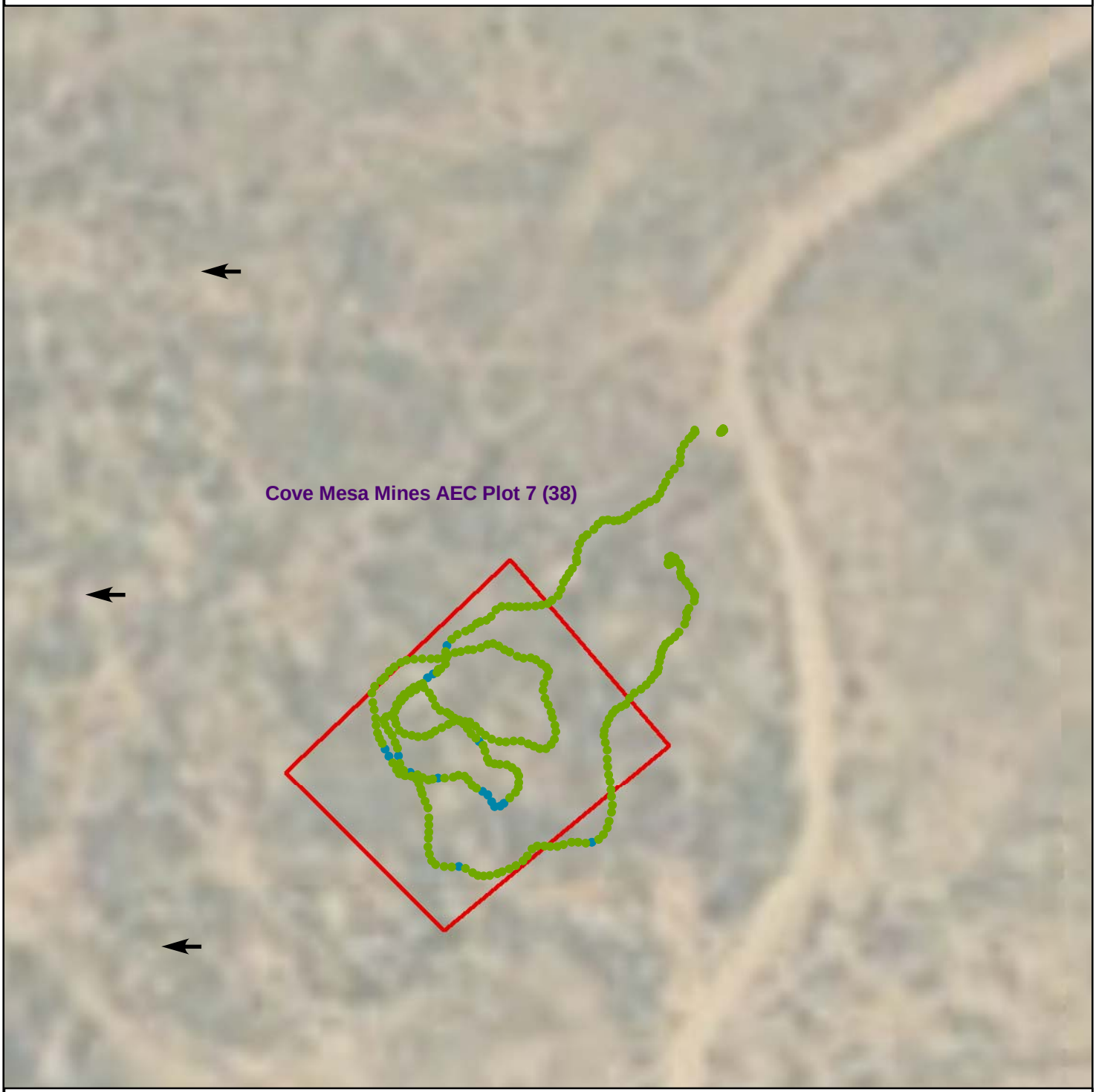
Average background = 10,932 cpm

N

0 — 100 **Feet**

WESTON SOLUTIONS

Figure 5 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (38)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

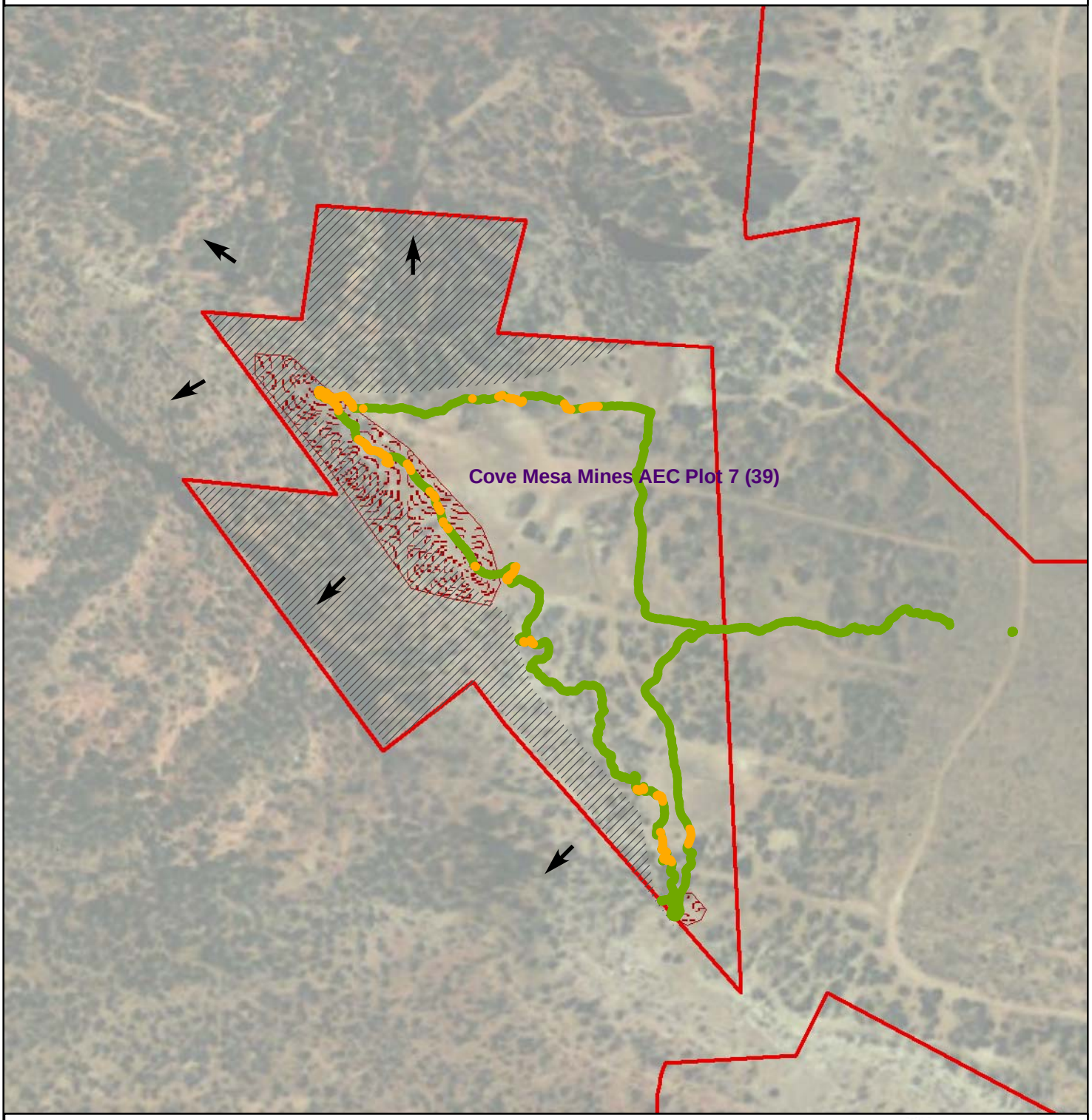
Average background = 10,932 cpm

N

0 — 100 Feet

WESTON SOLUTIONS

Figure 6 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mine AEC Plot 7 (39)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 11,635 cpm

Observed Waste Pile

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

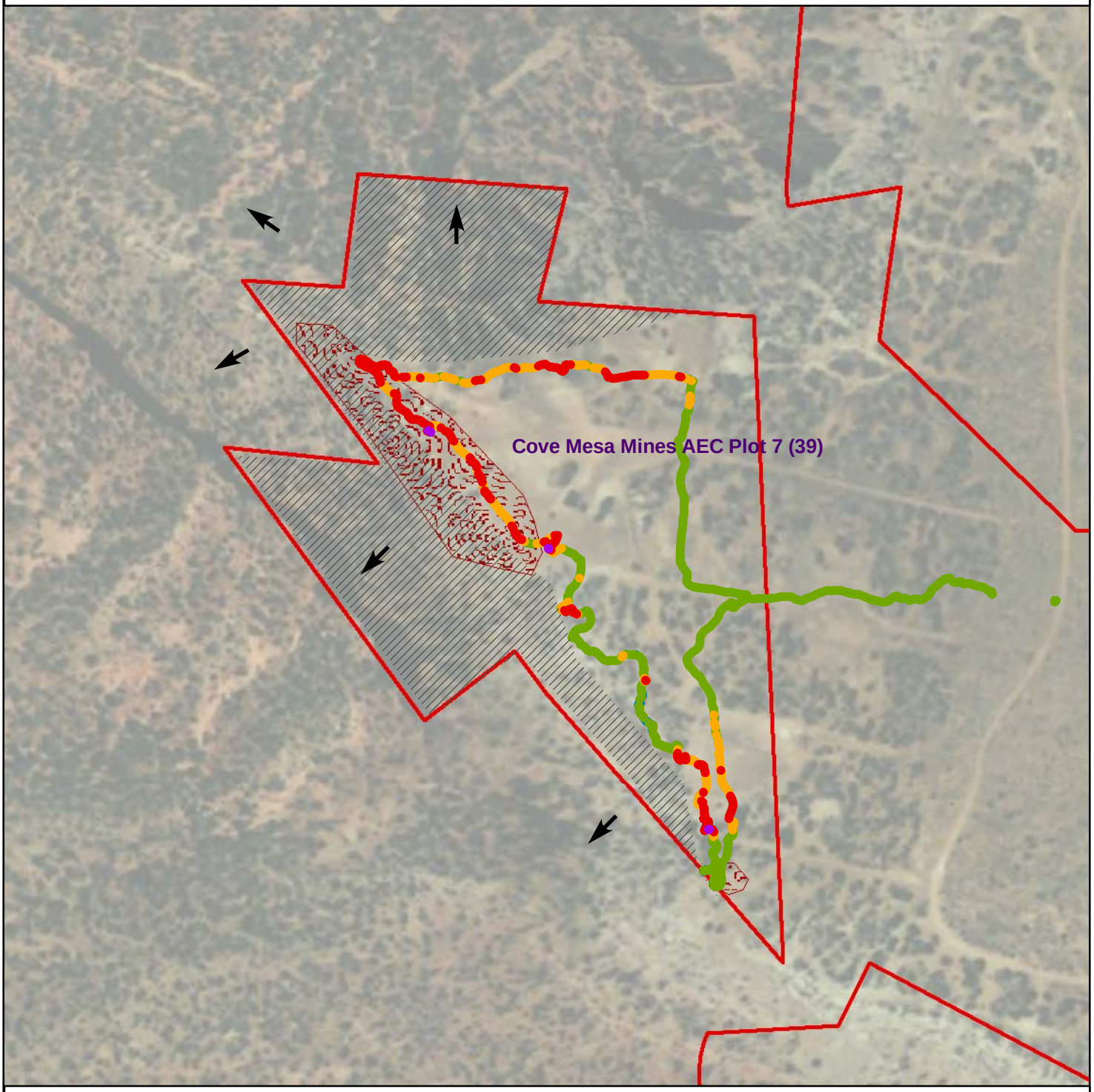
N

Feet

0 300

WESTON SOLUTIONS

Figure 7 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (39)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Observed Waste Pile

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 11,635 cpm

N

0 300 Feet

WESTON SOLUTIONS

Figure 8 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mine AEC Plot 7 (430)
Red Valley Chapter, Navajo Nation, Arizona

Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 9,984 cpm

Observed Waste Pile

Inaccessible due to steep grades

General Direction Down-Slope

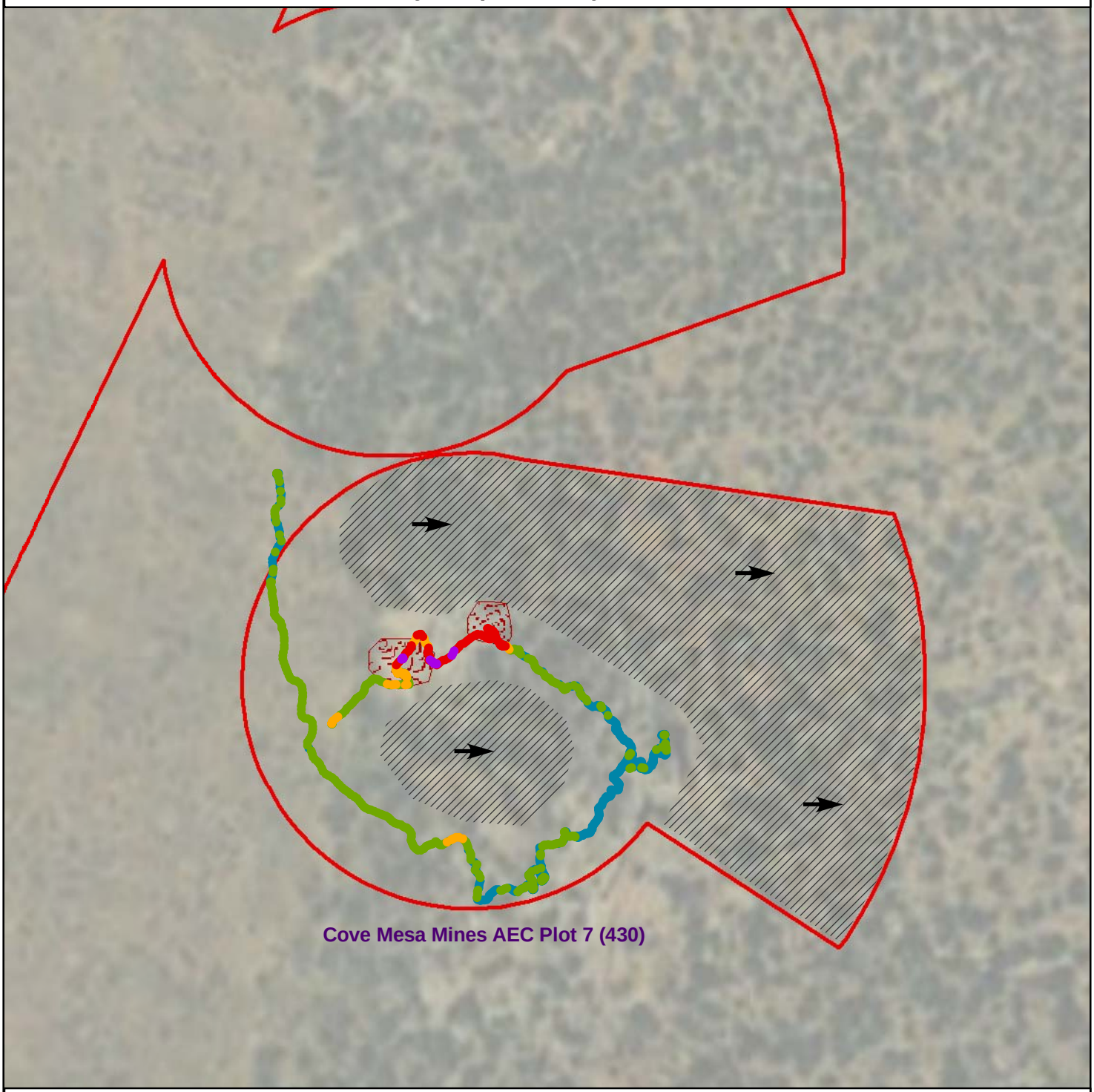
Mine Claim Boundaries

N

Feet

0 **150**

Figure 9 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (430)
Red Valley Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Observed Waste Pile

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 9,984 cpm

N

0 — 150 Feet

WESTON SOLUTIONS

Figure 10 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mine AEC Plot 7 (431)
Red Valley Chapter, Navajo Nation, Arizona

Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 11,696 cpm

General Direction Down-Slope

Mine Claim Boundaries

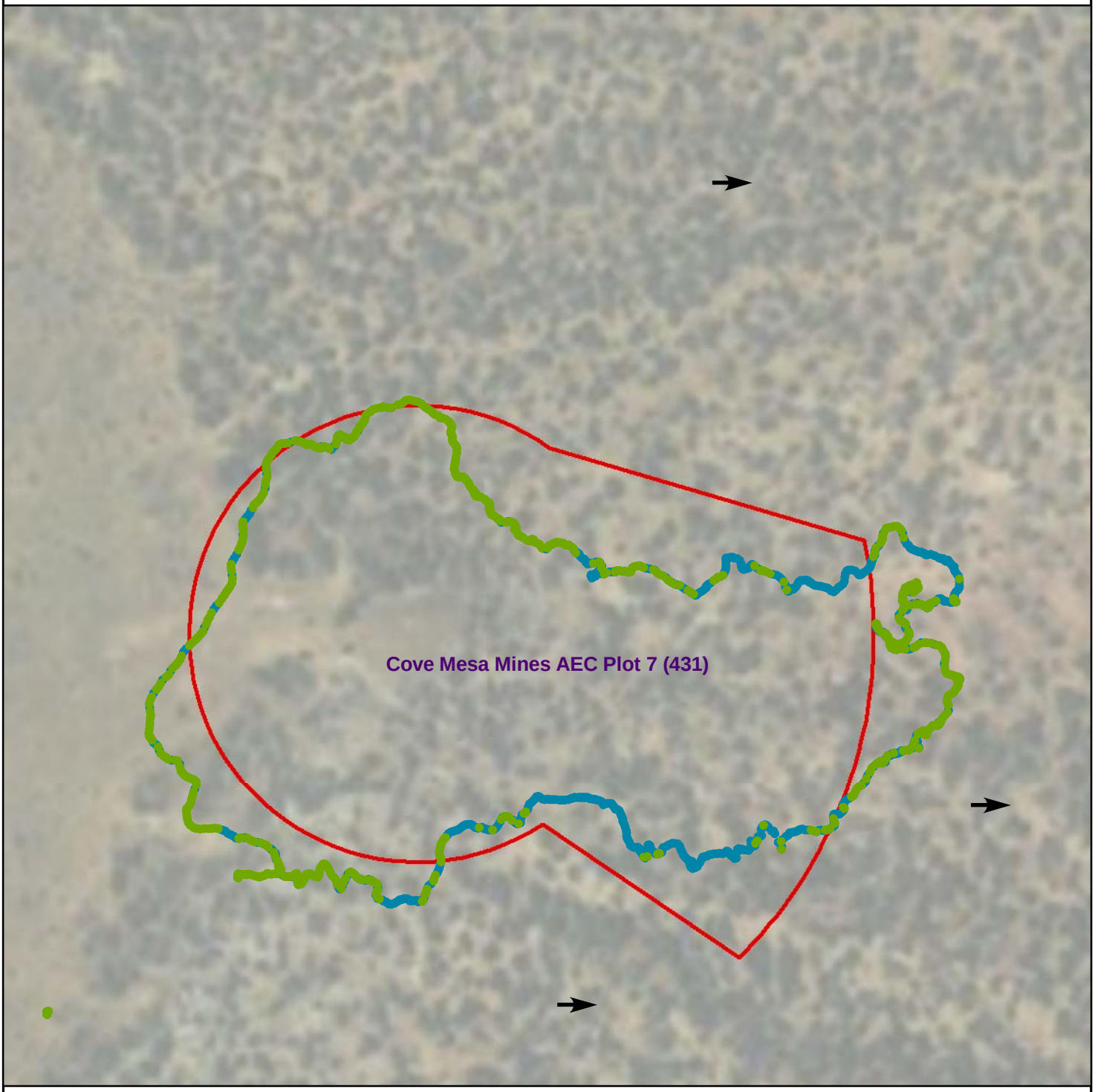
N

Feet

0 **150**

WESTON SOLUTIONS

Figure 11 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (431)
Red Valley Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 11,696 cpm

N

Feet

0 150

Figure 12 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mine AEC Plot 7 (434)
Red Valley/Sweetwater Chapter, Navajo Nation, Arizona

Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 10,136 cpm

Observed Waste Pile

Inaccessible due to steep grades

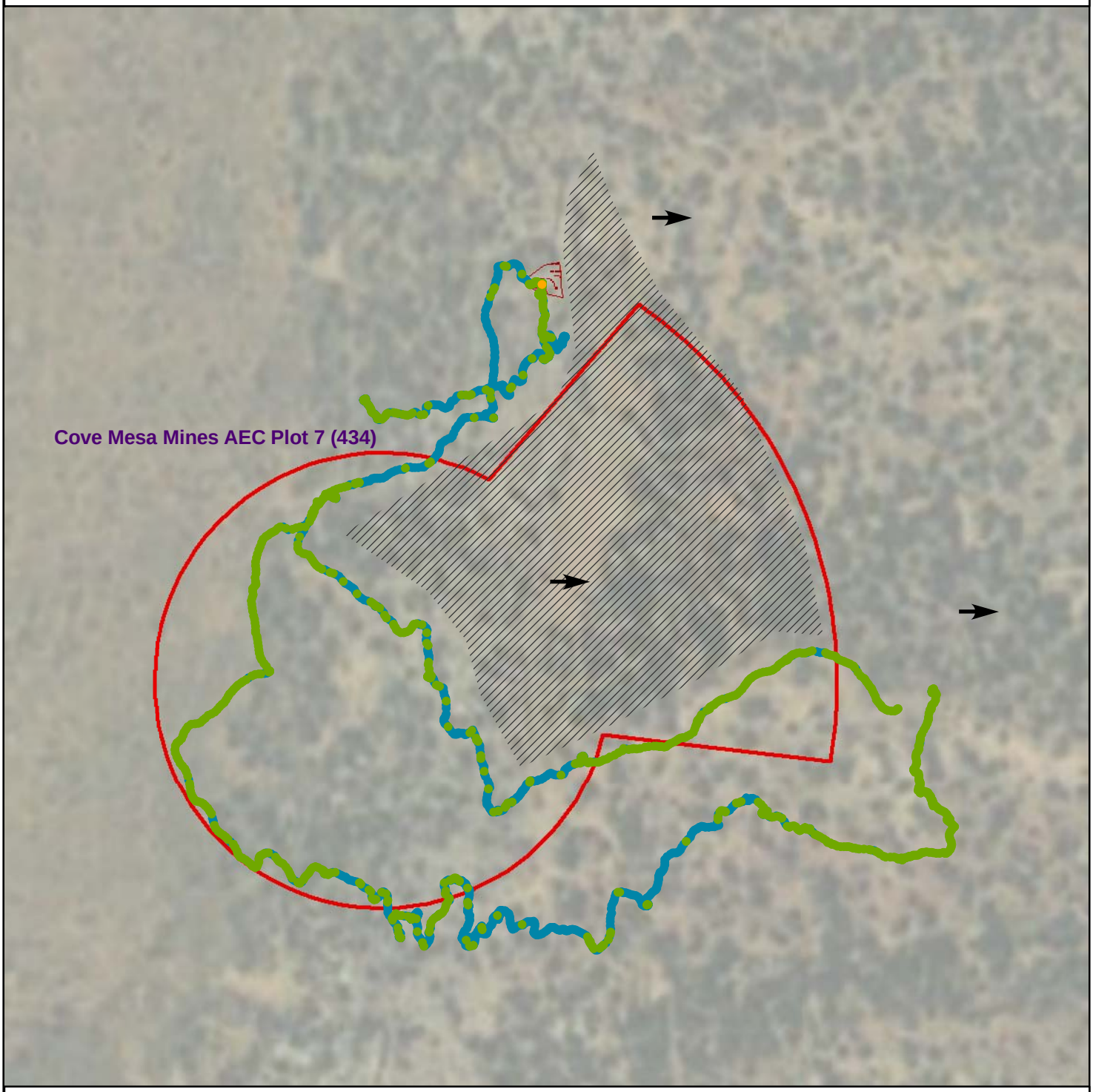
General Direction Down-Slope

Mine Claim Boundaries

N

0 150 **Feet**

Figure 13 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (434)
Red Valley / Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Observed Waste Pile

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

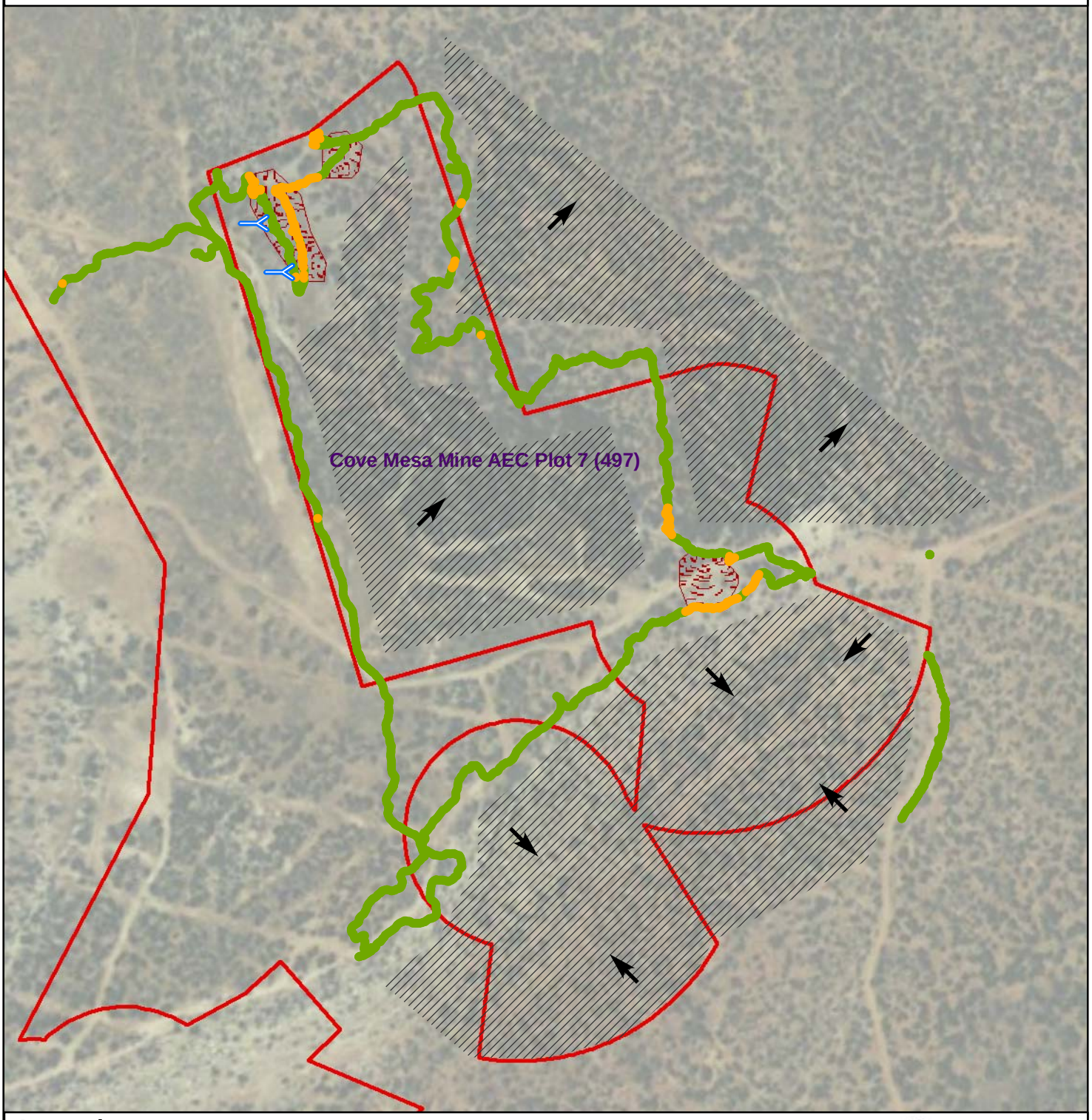
Average background = 10,136 cpm

N

0 — 150 Feet

WESTON SOLUTIONS

Figure 14 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mines AEC Plot 7 (497)
Sweetwater/Red Valley Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 12,670 cpm

- **Observed Waste Pile**
- **Observed Adit**
- **Inaccessible due to steep grades**
- **General Direction Down-Slope**
- **Mine Claim Boundaries**

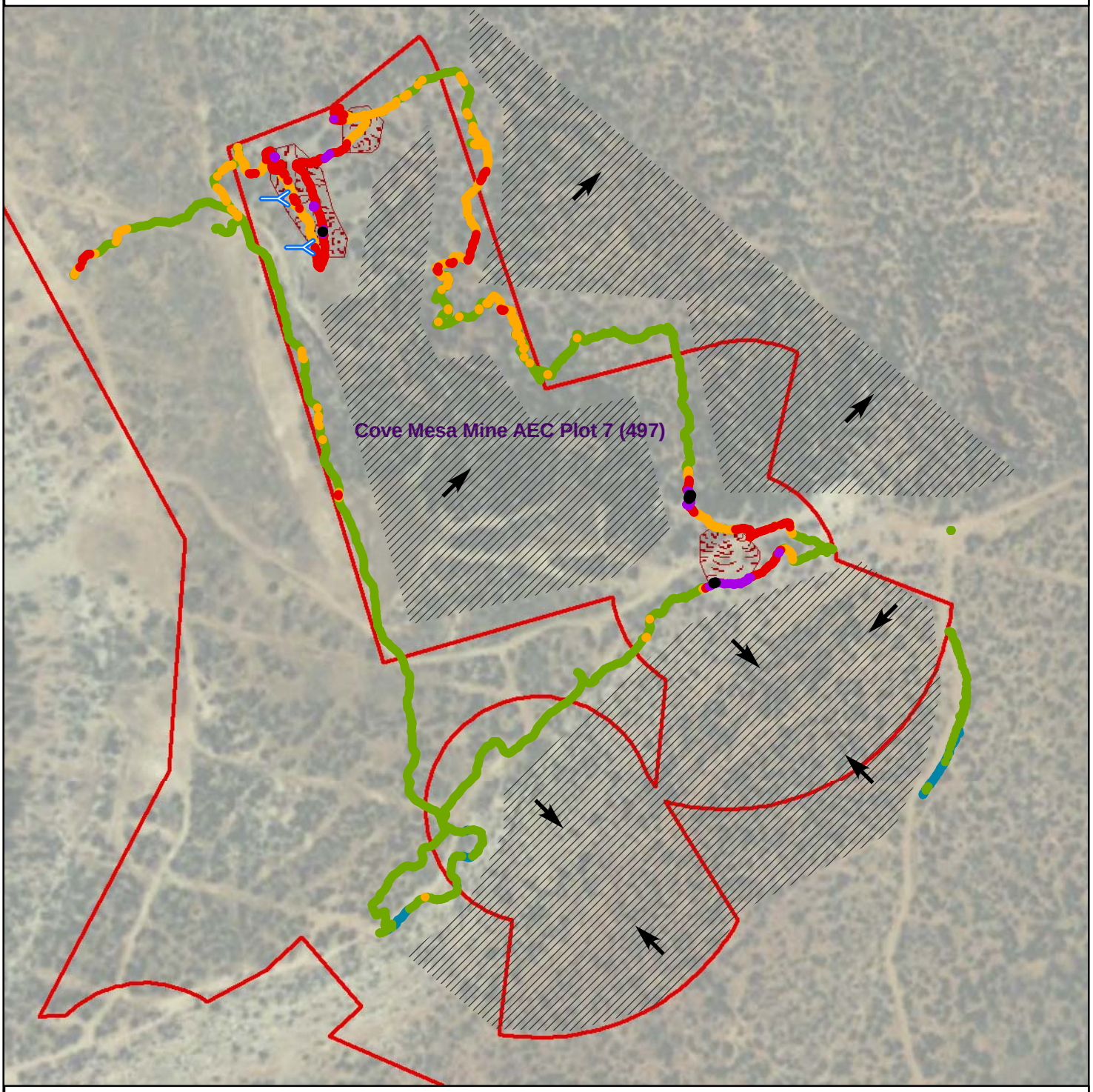
N

Feet

0 **300**

WESTON SOLUTIONS

Figure 15 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (497)
Sweetwater / Red Valley Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Observed Waste Pile

Observed Adit

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 12,670 cpm

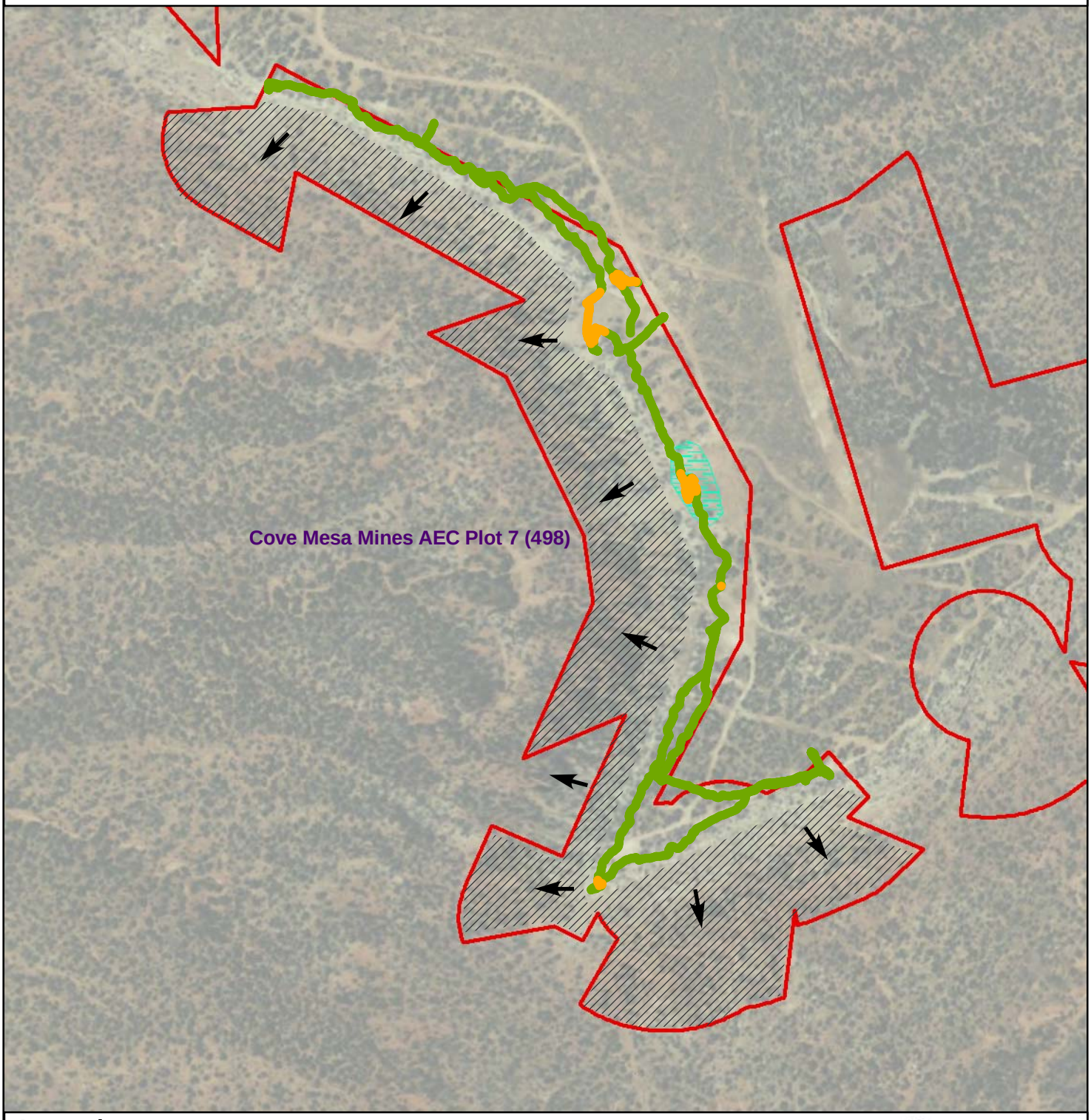
N

Feet

0 300

WESTON SOLUTIONS

Figure 16 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mines AEC Plot 7 (498)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 11,079 cpm

Reclamation Cap

Inaccessible due to steep grades

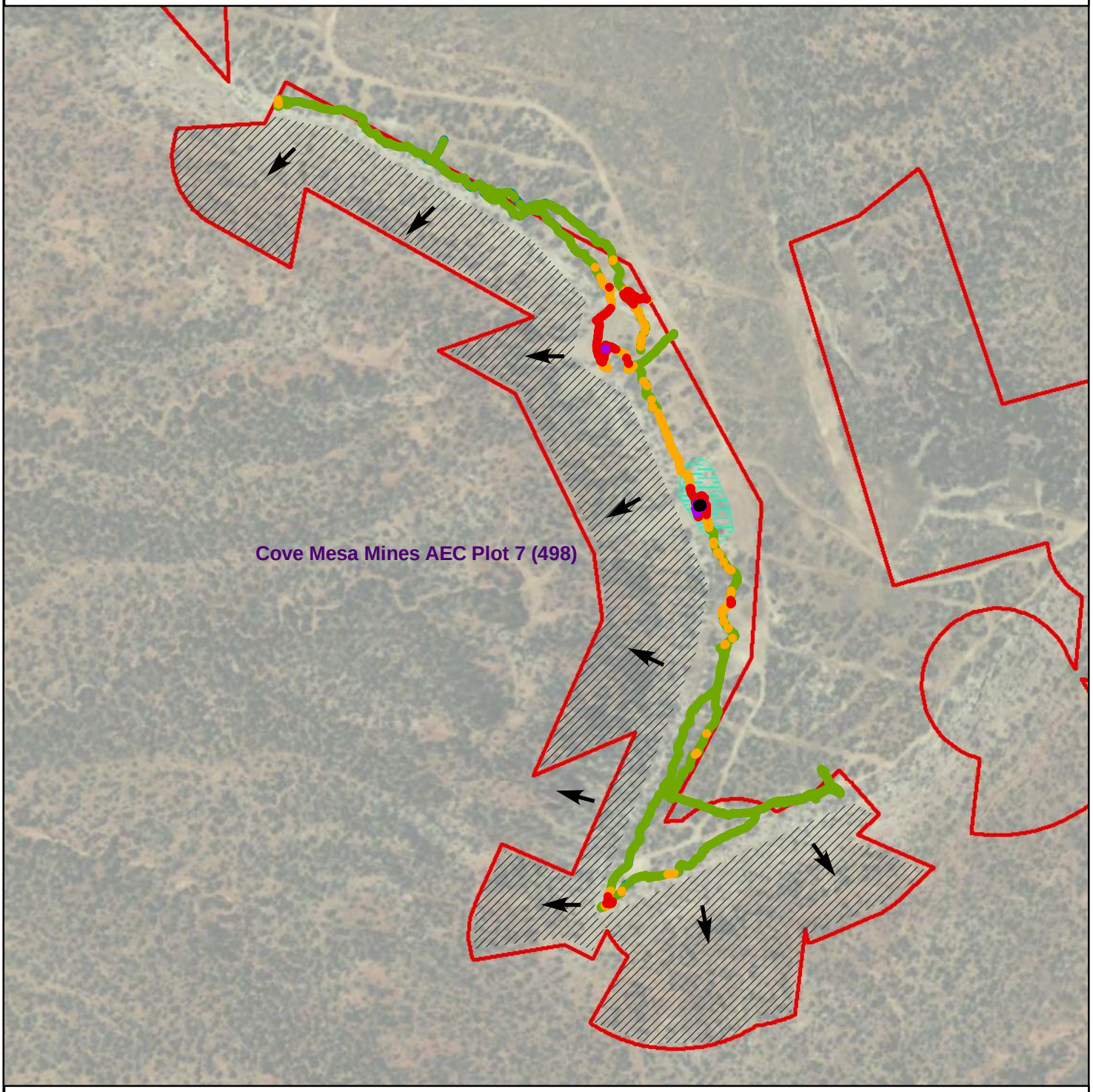
General Direction Down-Slope

Mine Claim Boundaries

N

0 — 500 **Feet**

Figure 17 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (498)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Reclamation Cap

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

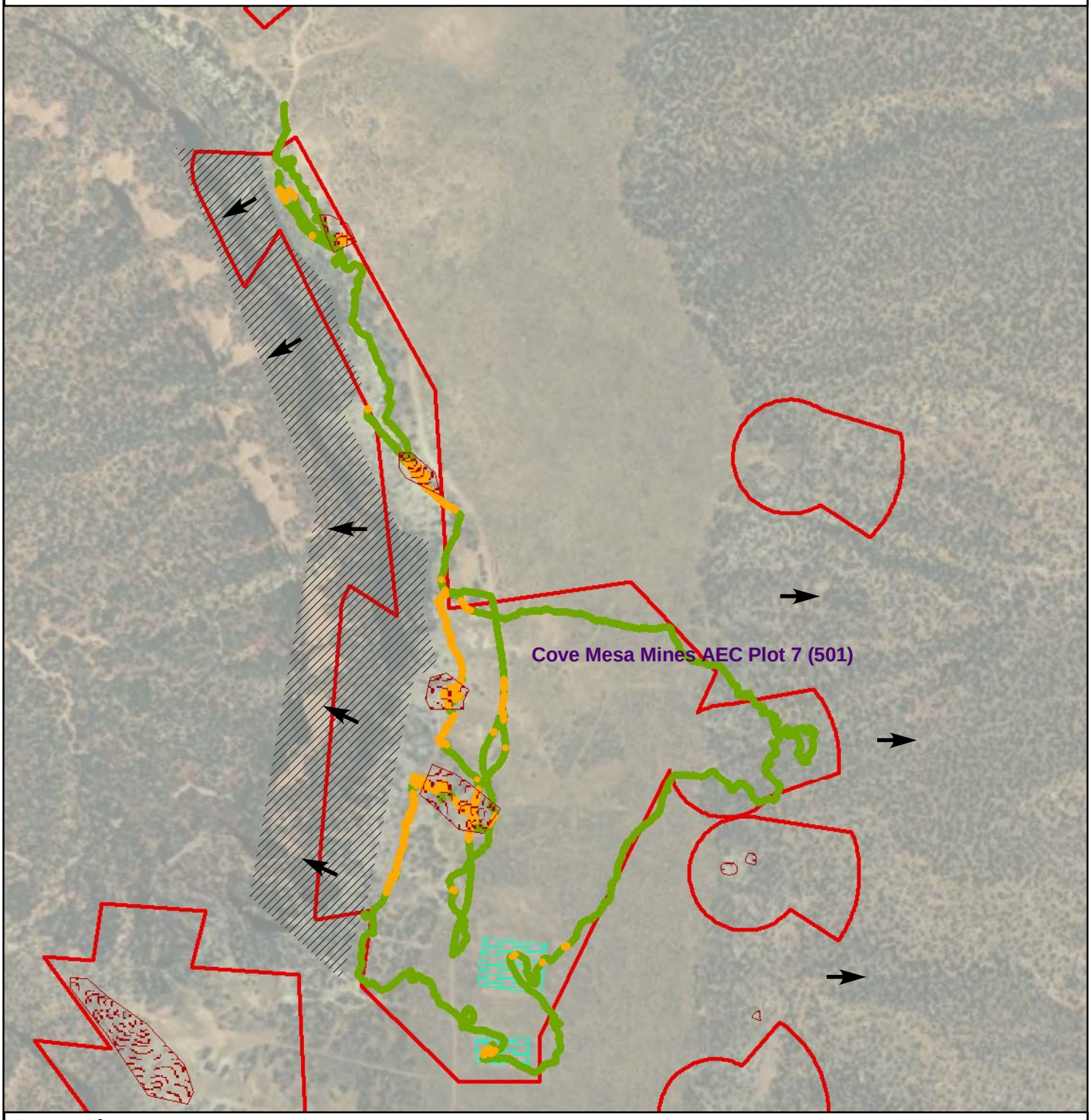
Average background = 11,079 cpm

N

Feet

0 500

Figure 18 - Gamma Radiation Measurements, Above Two Times Background
Cove Mesa Mines AEC Plot 7 (501)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- < 2X Backgound
- > 2X Background

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 10,723 cpm

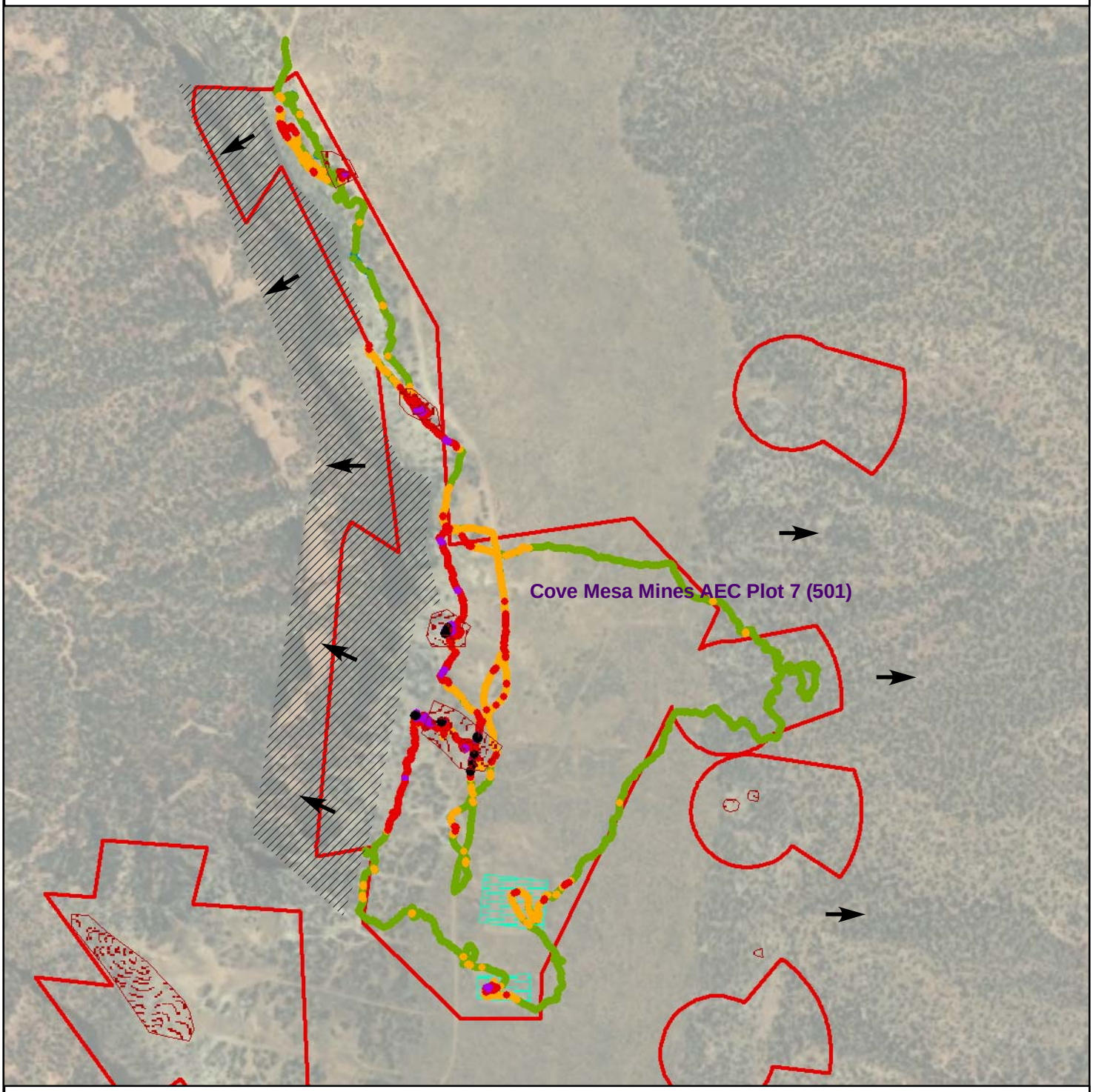
- **Observed Reclamation Cap**
- **Observed Waste Pile**
- **Inaccessible due to steep grades**
- **General Direction Down-Slope**
- **Mine Claim Boundaries**

N

Feet
0 **600**

WESTON SOLUTIONS

Figure 19 - Gamma Radiation Measurements
Cove Mesa Mines AEC Plot 7 (501)
Sweetwater Chapter, Navajo Nation, Arizona



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Observed Waste Pile

Observed Reclamation Cap

Inaccessible due to steep grades

General Direction Down-Slope

Mine Claim Boundaries

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 10,723 cpm

N

Feet

0 600

WESTON SOLUTIONS